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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/724,179	11/28/2000	Wenhua Lin	LIGHT1320	7760
7590	05/02/2006		EXAMINER CURS, NATHAN M	
TRAVIS DODD 2490 HEYENMAN HOLLOW FALLBROOK, CA 92028			ART UNIT 2613	PAPER NUMBER

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/724,179	LIN, WENHUA	
	Examiner	Art Unit	
	Nathan Curs	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 38-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 38-40, 44, 45 and 47-50 is/are rejected.
- 7) ☒ Claim(s) 41-43 and 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 40 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: connection of the bandwidth tunable filter module to any other claimed structural element of the channel selector.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 38, 39, 44, 45 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lumish et al. ("Lumish") (US Patent No. 6466341) in view of Lee (US Patent No. 5917626).

Regarding claim 38, Lumish discloses an add/drop apparatus, comprising: a channel selector configured to receive a plurality of channels that include a first channel and a second

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channel, the channel selector being configured to transmit the first channel to an add/drop node and the second channel to an output node when in a first channel mode (fig. 2 and col. 5, lines 25-43); and a switch configured to receive a plurality of optical channels and to direct the optical channels such that the optical channels are received by the channel selector or such that the optical channels bypass the channel selector and are received at the output node (figs. 1a and 1b and col. 4, line 45 to col. 6, line 24), an optical path along which the channel travels from the switch to the channel selector being exclusive of an optical path from the channel selector to the add/drop node and also exclusive of an optical path from the channel selector to the output node (figs. 1a and 1b). Lumish discloses WDM filtering and that the filters of the channel selector are thin-film filters, but does not disclose the channel selector being further configured to transmit the second channel to the add/drop node and the first channel to the output node when in a second channel mode. Lee discloses tunable thin-film filters for WDM filtering (figs. 4a and 4c and col. 5, line 51 to col. 6, line 18 and col. 6, lines 27-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to use one of more of the tunable thin-film filters of Lee in place of one or more of the fixed thin-film filters of Lumish, in order to provide the benefit of tunable add/drop for one or more of the WDM channels.

Regarding claim 39, the combination of Lumish and Lee discloses the apparatus of claim 38, wherein the channel selector is configured such that a bandwidth of a channel directed to the add/drop node can be tuned (Lee: figs. 4a and 4c and col. 5, line 51 to col. 6, line 18 and col. 6, lines 27-29).

Regarding claim 44, the combination of Lumish and Lee discloses the apparatus of claim 38, further comprising: a controller configured to operate the switch such that channels are directed to the output port when bypassing the filter (Lumish: figs. 1a and 1b and col. 4, line 45 to col. 6, line 24). Lumish and Lee do not individually disclose bypassing the filter when

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changing the apparatus between the first channel mode and the second channel mode; however, it would have been obvious to one of ordinary skill in the art at the time of the invention that once a channel selector filter in Lumish is made tunable in the combination, bypassing the filter during the tuning time would be mandatory to prevent data errors that would easily occur if channels were added or dropped during the tuning time.

Regarding claim 45, the combination of Lumish and Lee discloses the apparatus of claim 38, wherein: the channel selector is configured such that a first alternate optical channel traveling from the add/drop node to the channel selector travels from the channel selector to the output node when the channel selector is in the first channel mode (Lumish: fig. 1a, element $\lambda_{3.\text{prime}}$).

Regarding claim 50, the combination of Lumish and Lee discloses the apparatus of claim 38, wherein the channel selector is configured to transmit a plurality of channels to the add/drop node when in the first channel mode (fig. 2 and col. 5, lines 25-43).

5. Claims 47-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lumish et al. ("Lumish") (US Patent No. 6466341) in view of Lee (US Patent No. 5917626) as applied to claims 38-46 and 50 above, and further in view of Hamel et al. ("Hamel") (US Patent No. 5771112).

Regarding claim 47, the combination of Lumish and Lee discloses the apparatus of claim 38, and discloses add/drop for more than one channel, but does not disclose a second channel selector configured to receive the plurality of channels from the switch, the second channel selector configured to transmit one or more of the channels to the add/drop node. Hamel discloses an add-drop node with a multiple switched channel selectors configuration (fig. 1 and col. 3, line 36 to col. 4, line 13). It would have been obvious to one of ordinary skill in the art at

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the time of the invention to use the multiple switched channel selectors configuration of Hamel in place of the one channel selector configuration of the combination of Lumish and Lee, to provide the benefit of selecting between different channel selection options provided by different channel selectors.

Regarding claim 48, the combination of Lumish, Lee and Hamel discloses the apparatus of claim 47, wherein one or more of the second channel selectors is a fixed channel selector (Hamel: fig. 1 and col. 3, line 36 to col. 4, line 13, where in the combination any channel selector can be tunable or fixed).

Regarding claim 49, the combination of Lumish, Lee and Hamel discloses the apparatus of claim 47, further comprising: an optical channel coupler configured to receive channels from the channel selector and from the one or more second channel selectors and to direct the received channels to the output port (Hamel: fig. 1, element C2, as applicable in the combination).

Allowable Subject Matter

6. Claims 41-43 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 21 February 2006, regarding claims 38 and 39 have been fully considered but they are not persuasive.

Regarding claim 38, Applicant argues that Lee fails the first test of MPEP 2141.01(a) because Applicant's field of endeavor is add/drop nodes and that Lee's field of endeavor is

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demultiplexers/multiplexers. This argument is not persuasive because optical add/drop of wavelengths is a form of optical multiplexing/demultiplexing of wavelengths. Therefore Applicant and Lee share the same field of endeavor, and Lee passes the first test provided in MPEP 2141.01(a). Applicant also argues that Lee fails the second test of MPEP 2141.01(a) because Lee does not "commend itself to the attention of an inventor trying to generate a hitless add/drop node". Even though Lee already passes the first test of MPEP 2141.01(a), Examiner notes that Applicant mischaracterizes the requirements of the second test of MPEP 2141.01(a). The test is not that Lee must solve the same problem as Applicant (e.g. "hitless add/drop node"), or "commend itself to the attention of an inventor trying to generate a hitless add/drop node" as argued by Applicant. Rather, the test is that Lee must be **reasonably pertinent** to the particular problem with which Applicant was concerned. The channel selector of the add/drop node of Applicant and the demultiplexer/multiplexer of Lee both include functionality to separate optical wavelengths by using optical filters. Also, the channel selector of the add/drop node of Applicant is central to solving the particular problem with which Applicant was concerned. The overlap in function between Lee's demultiplexer/multiplexer and Applicant's channel selector, a central part of Applicant's solution, indicates that Lee, at the very least, is reasonably pertinent to the particular problem with which the inventor was concerned. Therefore, Lee also passes the second test provided in MPEP 2141.01(a).

Applicant also argues, regarding claim 38, that Lee and Lumish teach away from their combination because Lumish "teaches that filter based demultiplexers are undesirable at column 3, lines 47-51". First, Examiner does not understand how Applicant derives this conclusion from the citation. The citation discloses substituting a filter-based multiplexer in place of a passive coupler, and then the remaining text in the paragraph of the citation states the limitations of what Lumish knows as prior art; specifically, the limitations of "subjecting the

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full plurality of channels to many stages of demultiplexing and multiplexing". This is a statement of the limitations of "many stages" of demultiplexing and multiplexing, not a statement that filter-based demultiplexers are undesirable. Second, the applicant also cites Lumish col. 3, lines 15-16 to support the assertion that "Lumish states that an advantage of its add/drop system is that it removes the need to demultiplex a signal". However, in this citation Lumish states that "add/drop capability is accomplished without the need to demultiplex the **entire signal** [emphasis added]". This is much different than saying Lumish removes the need to demultiplex a signal. In fact, as already stated above, optical add/drop of wavelengths is a form of optical multiplexing/demultiplexing of wavelengths and Lumish explicitly claims a filter-based add/drop system, in other words, a type of filter-based multiplexer/demultiplexer. Therefore, any assertions that Lumish teaches "no demultiplexing" are false. Further, the teaching of Lee that is relevant in the combination with Lumish is Lee's teaching of tunable thin-film filter for WDM filtering, as described in the combination. The combination is not based on bodily incorporating the entirety of Lee into Lumish, nor is it required to be.

In response to applicant's argument regarding claim 38 that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In this case, the tunability of the thin-film filter of Lee provides motivation to modify the fixed thin-film filter of Lumish. Applicant argues that Lumish already teaches an add/drop system with tuning functionality and therefore there is no motivation to modify Lumish with Lee. However, the "tuning functionality" of Lumish cited by Applicant is a system consisting of multiple fixed thin-film filters arranged serially and is an entirely different embodiment than the combination. The

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motivation to use the tunable thin-film filter taught by Lee in place of the fixed thin-film filter taught by Lumish is proper.

Regarding claim 39, Applicant argues that the combination teaches wavelength tuning and not bandwidth tuning. However, Lee teaches wavelength tuning including variable bandwidth. Within the Lee citation in the rejection, discussing wavelength tuning, Lee col. 5, line 67 to col. 6, line 2 states, "the appropriate incident angle is chosen to pass one or more spectral components in the beam by adjusting the radial displacement $r_{sub.1}$ ". This is a disclosure that the wavelength-tuning functionality of Lee includes bandwidth-tuning functionality.

8. Applicant's arguments, filed 21 February 2006, with respect to claims 40-42 and 46 have been fully considered and are persuasive with respect to "different elements [diverting] the same channel to produce different bandwidths" (although the arguments against citing Lumish fig. 2 in one place and Lee figs. 4a and 4c in another place were not persuasive since no figures exist for the combination of Lumish and Lee; citing figures from Lumish and Lee individually is the only way to make citation applicable for the combination of the references). The rejections of these claims have been withdrawn. However, upon further consideration, a new 112-2nd paragraph rejection is made for claim 40, as described above.


Conclusion

9. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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